

Amendments to the Claims

Claim 1 (cancelled)

Claim 2 (currently amended): A retroviral reverse transcriptase having RNA-dependent DNA polymerase activity which comprises ~~The reverse transcriptase of claim 1,~~
~~wherein the reverse transcriptase has one or more modifications or mutations at positions~~
corresponding to amino acids selected from the group consisting of:

- (a) leucine 52 of M-MLV reverse transcriptase;
- ~~(b) tyrosine 64 of M-MLV reverse transcriptase;~~
- ~~(c) lysine 152 of M-MLV reverse transcriptase;~~
- (d) histidine 204 of M-MLV reverse transcriptase;
- (e) methionine 289 of M-MLV reverse transcriptase; and
- (f) threonine 306 of M-MLV reverse transcriptase.

Claim 3 (original): The reverse transcriptase of claim 2, which is M-MLV reverse transcriptase.

Claim 4 (withdrawn)

Claims 5-6 (cancelled)

Claim 7 (original): The reverse transcriptase of claim 3, wherein histidine 204 is replaced with arginine.

Claims 8-9 (withdrawn)

Claim 10 (original): The reverse transcriptase of claim 3, wherein the reverse transcriptase has a mutation or modification at amino acids histidine 204 and threonine 306.

Claim 11 (original): The reverse transcriptase of claim 10, wherein histidine 204 is replaced with arginine and threonine 306 is replaced with either lysine or arginine.

Claim 12 (currently amended): The reverse transcriptase of claim 2 ~~+~~, which retains at least 50% of reverse transcriptase activity after heating to 50°C for 5 minutes.

Claim 13 (currently amended): The reverse transcriptase of claim 2 ~~+~~, which retains at least 70% of reverse transcriptase activity after heating to 50°C for 5 minutes.

Claim 14 (currently amended): The reverse transcriptase of claim 2 ~~+~~, which retains at least 85% of reverse transcriptase activity after heating to 50°C for 5 minutes.

Claim 15 (currently amended): The reverse transcriptase of claim 2 ~~+~~, which retains at least 95% of reverse transcriptase activity after heating to 50°C for 5 minutes.

Claim 16 (currently amended): The reverse transcriptase of claim 2 ~~+~~, wherein the reverse transcriptase has one or more properties selected from the group consisting of:

- (a) reduced or substantially reduced RNase H activity in comparison to the corresponding wild-type enzyme;
- (b) reduced or substantially reduced terminal deoxynucleotidyl transferase activity in comparison to the corresponding wild-type enzyme; and
- (c) increased fidelity in comparison to the corresponding wild-type enzyme.

Claim 17 (currently amended): The reverse transcriptase of claim 16, wherein the reverse transcriptase has reduced or substantially reduced RNase H activity in comparison to the corresponding wild-type enzyme.

Claim 18 (currently amended): The reverse transcriptase of claim 16, wherein the reverse transcriptase has reduced or substantially reduced terminal deoxynucleotidyl transferase activity in comparison to the corresponding wild-type enzyme.

Claims 19-23 (withdrawn)

Claim 24 (currently amended): The reverse transcriptase of claim 16, wherein the reverse transcriptase has increased fidelity in comparison to the corresponding wild-type enzyme.

Claim 25 (withdrawn)

Claim 26 (currently amended): The reverse transcriptase of claim 24, wherein the reverse transcriptase is selected from the group consisting of M-MLV, RSV, AMV, and HIV reverse transcriptases.

Claim 27 (original): The reverse transcriptase of claim 26, wherein the reverse transcriptase is selected from the group consisting of M-MLV RNase H- reverse transcriptase, RSV RNase H- reverse transcriptase, AMV RNase H- reverse transcriptase, RAV RNase H- reverse transcriptase, and HIV RNase H- reverse transcriptase.

Claim 28 (original): The reverse transcriptase of claim 26, wherein the reverse transcriptase is an M-MLV reverse transcriptase.

Claim 29 (withdrawn)

Claims 30-43 (previously cancelled)

Claim 44 (currently amended): A kit for use in reverse transcription, amplification or sequencing of a nucleic acid molecule, the kit comprising one or more reverse transcriptases of claim 24.

Claim 45 (original): The kit of claim 44, the kit further comprising one or more components selected from the group consisting of one or more nucleotides, one or more DNA polymerases, a suitable buffer, one or more primers and one or more terminating agents.

Claim 46 (original): The kit of claim 45, wherein the terminating agent is a dideoxynucleotide.

Claim 47 (original): The kit of claim 44, wherein the reverse transcriptase is an M-MLV reverse transcriptase.

Claim 48-50 (cancelled)

Claim 51 (new): The reverse transcriptase of claim 3, which comprises a modification or mutation at histidine 204.

Claim 52 (new): The kit of claim 47, wherein the reverse transcriptase comprises a modification or mutation at histidine 204.